

**COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Tidewater Regional Office**

STATEMENT OF LEGAL AND FACTUAL BASIS

Norfolk Naval Shipyard
Portsmouth, Virginia
Permit No. TRO-60326

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Norfolk Naval Shipyard has applied for a Title V Operating Permit for its Portsmouth facility. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Engineer/Permit Contact: _____ Date: _____

Air Permit Manager: _____ Date: _____

Director: _____ Date: _____

I. FACILITY INFORMATION

Permittee:

Norfolk Naval Shipyard
Portsmouth, VA 23709-5000

Responsible Official:

R.G. Chantry
Director of Occupational, Safety, Health and Environmental Division

Facility

Norfolk Naval Shipyard
Portsmouth, VA 23709-5000

Contact Person:

Matthew A. Peppers
NESHAP Program Manager
(757) 396-4403
mathew.peppers@navy.mil

County-Plant Identification Number: 51-740-00006

Facility Description: NAICS 928110 and 336611 – NNSY is one of four NAVY shipyards in the United States. The facility occupies 810.25 acres and employs approximately 7,000 people. NNSY has the capability to dry-dock any NAVY vessel including nuclear and non-nuclear powered carriers and submarines. There are six operable dry-docks located at NNSY and multiple slips and piers. A variety of activities are conducted in support of repair and overhaul operations including, but not limited to: painting and blasting, welding, electroplating, machining and crane loading. Many of these activities are conducted in large buildings and shops located in the industrial area of the yard. Shipboard equipment and machinery is often removed from a dry-docked vessel by overhead crane, and is taken to various shops within the shipyard for repair or overhaul after which they are returned to the ship for re-installation. The following North American Industry Classification System (NAICS) codes apply to the operations at NNSY:

- 928110 (9711) - National security
- 336611 (3731) - Shipbuilding and repairing

The Southgate Annex, which is located next to NNSY, is owned and operated by the Commander, Navy Region Mid-Atlantic (CNRMA). Emission units for this area are listed in the CNRMA section of the permit. New Gosport, Stanley Court and Scott Center are not considered part of this facility for Title V purposes.

The facility is a Title V major source of HAPs and is subject to the Shipbuilding MACT. This source is located in a marginal non-attainment area for ozone and in an attainment area for all other pollutants, and is a PSD major source because of its relationship with SPSA. SPSA is a support facility for NNSY. The facility is currently permitted under a Minor NSR Permit issued on 2/23/07.

This permit action is renewal of the Title V permit.

II. FACILITY INFORMATION- CNRMA

Permittee

Commander Navy Region Mid-Atlantic
Code N547
1510 Gilbert Street
Norfolk, VA 23511

Responsible Official

Cherryl F. Barnett
Head Regional Environmental Group
By direction of the Commander

Facility

Southgate Annex
Norfolk Naval Shipyard
Portsmouth, VA 23709-5000

Contact Person

Leal Boyd
Air Program Manager
(757) 445-6636

AFS Identification Number: 51-740-00006

Facility Description: CNRMA owns and operates the Southgate Annex, which is located next to the Norfolk Naval Shipyard. The Southgate Annex is a storage facility for inactive naval vessels (NNSY owns 4 of the 6 piers). The area includes 63 acres and approximately 80 employees are associated with the Southgate Annex. Maintenance of these inactive vessels is done to ensure their integrity while in storage or to prepare them for re-use or disposal. The Naval Facilities Mid-Atlantic (NAVFAC MIDLANT) uses space to park vehicles (when not leased) which are leased to various government activities. The Intra-Fleet Supply Support Operations Team (ISSOT) also has a presence. The ISSOT provides temporary labor to the Department of Defense and other federal agencies and they also have some buildings used for storage. Naval Coastal Warfare Group (NCWG) performs small boat maintenance and utilizes two firing ranges at the facility.

- 9711 - National security

III. COMPLIANCE STATUS

A full compliance evaluation of this facility, including a site visit, has been conducted. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. The facility agreed to an Order By Consent on October 3, 2006, which requires the facility to prepare a plan to address administrative recordkeeping for Volatile Organic Compounds of marine coatings to ensure compliance with 40 CFR 63, Subpart II (Shipbuilding MACT). They have provided a plan to DEQ and within 30 days of approval must implement the plan. Once the consent order is terminated the plan may also terminate, however, the facility must remain in compliance with the shipbuilding MACT. This permit has specific conditions listing the requirements of the Shipbuilding MACT in Section VI.

IV. EMISSIONS INVENTORY

A copy of the 2005 annual emission update is attached. Emissions are summarized in the following table.

2005 Actual Emissions

Emission Units	2005 Criteria Pollutant Emissions in Tons/Year				
	PM ₁₀	SO ₂	NO _x	VOC	CO
Peak Generators	.24	.5	2.95	.21	.84
Other Generators	.44	.56	7.73	.52	1.76
Painting (outdoors)	2.31			7.11	
Pipe Cleaning					
Chrome Plating					
Electric Motor Coating/Oven				.91	
Paint Spray Booths (15)	.55			6.47	
Cleaning, Thinning, Solvents				12.75	
Abrasive Blasting, Drydock					
Abrasive Blasting, Booths	.02				
Refueling Spillage				.036	
Refueling Displacement Loss				.56	
Pumpcell Emergency Generators					
Powder/Thermal Spray Booths	.00682				
Miscellaneous Cutting	.012				
Wood Working Shops	.08				
Total	4.4	1.1	10.7	28.6	2.6

2005 Actual Hazardous Air Pollutant Emissions

Pollutant	Emissions in Tons/Yr
Lead	2.71 x 10 ⁻⁵
Non-VOC, Non-PM HAPS	0.06

V. APPLICABLE REQUIREMENTS

A. Internal Combustion Engines (Generators) - Shipyard

1. Limitations

There are no federal regulations applicable to the Internal Combustion Engines at the shipyard.

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5 Chapter 50	New and Modified Stationary Sources
9 VAC 5 Chapter 50	Article 1: Visible Emissions and Fugitive Dust/Emissions

The following demonstration is provided to show that there is not a great likelihood that the emission limits found in section III.A of the title V permit will be exceeded:

AP42 Emission Factors from Section 3.4, Large Stationary Diesel and All Stationary Dual-fuel Engines:

$$\text{PM} = 0.1 \text{ lb/mmBtu}$$

$$\text{SO}_2 = 1.01S \text{ lb/mmBtu, where } S = \text{weight percent of sulfur in the fuel}$$

$$\text{NO}_2 = 1.9 \text{ lb/mmBtu}$$

$$\text{CO} = 0.85 \text{ lb/mmBtu}$$

$$\text{VOC} = 0.0819 \text{ lb non-methane VOC/mmBtu}$$

$$\text{Weight percent of sulfur} = 0.5$$

$$\text{Emission Units ICGF-036 through 043} = 16.856 \text{ mmBtu/hr, each}$$

Particulate Matter Emissions from ICGF-036 through 043, each:

$$\text{PM} = 0.1 \text{ lb/mmBtu} \times 16.856 \text{ mmBtu/hr} = \mathbf{1.6 \text{ lbs/hr, each}}$$

$$\text{Title V permitted rate} = \mathbf{3.9 \text{ lbs/hr PM, each}}$$

Sulfur Dioxide Emissions from ICGF-036 through 043, each:

$$\text{SO}_2 = [(1.01)(0.5) \text{ lb/mmBtu}] \times 16.856 \text{ mmBtu/hr} = \mathbf{8.5 \text{ lbs/hr, each}}$$

$$\text{Title V permitted rate} = \mathbf{8.1 \text{ lbs/hr, each}}$$

Nitrogen Dioxide Emissions from ICGF-036 through 043, each:

$$\text{NO}_2 = 1.9 \text{ lb/mmBtu} \times 16.856 \text{ mmBtu/hr} = \mathbf{32.0 \text{ lbs/hr each}}$$

$$\text{Title V permitted rate} = \mathbf{47.9 \text{ lbs/hr, each}}$$

Carbon Monoxide Emissions from ICGF-036 through 043, each:

$$\text{CO} = 0.85 \text{ lb/mmBtu} \times 16.856 \text{ mmBtu/hr} = \mathbf{14.3 \text{ lbs/hr, each}}$$

$$\text{Title V permitted rate} = \mathbf{13.6 \text{ lbs/hr, each}}$$

VOC Emissions from ICGF-036 through 043, each:

$$\text{VOC} = 0.0819 \text{ lb VOC/mmBtu} \times 17.0 \text{ mmBtu/hr} = \mathbf{1.39 \text{ lb VOC/hr, each}}$$

$$\text{Title V permitted rate} = \mathbf{3.5 \text{ lbs/hr, each}}$$

2. **Monitoring**

Visual emission monitoring has been added to prove compliance with the opacity limit in the permit.

3. **Recordkeeping/Reporting**

Fuel throughput records, Fuel supplier certifications and all visual emission logs are required to be kept.

4. **Testing**

The permit requires construction of the facility in such a manner so as to allow for emissions testing at any time using appropriate methods.

B. Abrasive Blasting Operations - Shipyard

1. **Limitations**

There are no federal regulations applicable to the Abrasive Blasting Operations at the shipyard

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5 Chapter 40	Part I: Existing Stationary Sources - Special Provisions
9 VAC 5 Chapter 50	New and Modified Stationary Sources
9 VAC 5 Chapter 50	Article 1: Visible Emissions and Fugitive Dust/Emissions

The following demonstration is provided to show that there is not a great likelihood that the emission limits found in section IV.A of the title V permit will be exceeded:

PM/PM₁₀ Emissions Using Aluminum Oxide:

Uncontrolled emissions from Breakdown of Media in lb/hr (using max capacity of guns)=
 $1,800 \text{ lb/hr/nozzle} \times 2 \text{ nozzles} \times 20\% \text{ breakdown rate} = 720 \text{ lb/hr}$

Uncontrolled PM/PM₁₀ Emissions from Breakdown of Old Paint in lb/hr =
 $2.5 \text{ sq ft/min/nozzle} \times 2 \text{ nozzles} \times 0.00125 \text{ ft (paint thickness)} \times$
 $80.78 \text{ lb/cu ft (paint density)} \times 60 \text{ min/hr} = 30.29 \text{ lb/hr}$

Controlled PM/PM₁₀ emissions in lb/hr = $(720 \text{ lb/hr} + 30.29 \text{ lb/hr}) \times (1 - 99\% \text{removal}) = 0.75 \text{ lb/hr}$

Controlled PM/PM₁₀ emission in ton/yr = $0.75 \text{ lb/hr} \times 24\text{hr/day} \times 7 \text{ day/wk} \times 52\text{wk/yr} = 6552 \text{ lb/yr}$ or
3.27 ton/yr

Title V permitted rate = **3.3 ton/yr**

PM/PM₁₀ Emissions Using Plastic Blasting Media

Uncontrolled PM/PM₁₀ Emission from Breakdown of Media in lb/hr =
800 lb/hr/nozzle x 2 nozzles x 5% breakdown rate = 80 lb/hr

Uncontrolled PM/PM₁₀ Emission from Breakdown of Old Paint in lb/hr =
1 sq ft/min/nozzle x 2 nozzles x 0.00125 ft (paint thickness) x
80.78 lb/cu ft (paint density) x 60 min/hr = 12.12 lb/hr

Controlled emission in lb/hr = (80 lb/hr + 12.12 lb/hr) x (1 - 99%removal) = 0.09 lb/hr

Controlled emission in ton/yr = 0.09 lb/hr x 24hr/day x 7 day/wk x 52wk/yr = 804.76 lb/yr or
0.4 ton/yr

2. **Monitoring**

Visual emission monitoring limits the permittee to no visible emissions.

3. **Reporting and Recordkeeping**

Throughputs of the various grits must be kept on file as well as logs of the differential pressure gauges and visible emissions observations

4. **Testing**

The permit requires construction of the facility in such a manner so as to allow for emissions testing at any time using appropriate methods. The permit does not require source tests. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

C. **Wood Working Operations - Shipyard**

1. **Limitations**

There are no federal regulations applicable to the Wood Working Operations at the shipyard. The source does meet the definition of Incidental Wood Furniture Manufacturer under the MACT for Wood Furniture Manufacturing Operations (Subpart JJ) which requires them to keep track of the purchase or usage records to demonstrate that they use no more than 100 gallons per month of finishing material or adhesives in the manufacture of wood furniture or wood furniture components and are therefore not applicable to the MACT.

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5 Chapter 40	Part I: Existing Stationary Sources - Special Provisions
9 VAC 5 Chapter 40	Article 17: Emission Standards For Woodworking Operations
9 VAC 5 Chapter 50	New and Modified Stationary Sources
9 VAC 5 Chapter 50	Article 1: Visible Emissions and Fugitive Dust/Emissions

2. **Monitoring**

Visual emission monitoring limits the permittee to no visible emissions.

Particulate matter emissions are estimated using an AP-42 emission factor for woodworking waste collection operations equipped with a cyclone for PM collection (Section 10.4, Table 10.4.1, 4th Edition). An uncontrolled PM emission factor of 0.3 gr/scf was developed based on the assumption that cyclone separators achieve 90% control efficiency on average (per AP-42). Using this emission factor and a control efficiency of 90%, we can predict that the emissions for this type of operation will not exceed the 0.05 gr/dsfm limit.

$$0.3 \text{ gr/scf} \times (1-0.90) = 0.03 \text{ gr/scf}$$

3. **Recordkeeping**

Records of the visual inspections must be kept.

4. **Testing**

The permit does not require source tests. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

D. Coating Operations

1. **Limitations**

There are two federal regulations applicable to the Coating Operations at the shipyard. They are listed below:

40 CFR Part 63 Subpart II - National Emission Standards for Shipbuilding and Ship Repair
(Surface Coating)

40 CFR Part 63 Subpart N - National Emission Standards for Chromium Emissions from Hard
and Decorative Chromium Electroplating and Chromium Anodizing

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5 Chapter 40	Article 32: Emission Standards for Vinyl Coating Application Systems
9 VAC 5 Chapter 50	New and Modified Stationary Sources
9 VAC 5 Chapter 50	Article 1: Visible Emissions and Fugitive Dust/Emissions

9 VAC 5 Chapter 40, Article 34 is not applicable to the spray paint booths based on the August 2, 1997, letter from DEQ to Newport News Shipbuilding

2. **Monitoring**

Paint Booths

Max permitted throughput = 16,257 gal/year

Max VOC/gal allowed by 40 CFR 63 Subpart II = 5.42 lb/gal

16,257 gal/yr x 5.42 lb VOC/gal ÷ 2000 lb/ton = 44.1 ton/yr

Title V permitted limit = 54 ton/yr

Monitoring to determine compliance with the provisions of 40 CFR Part 63 Subpart II will be in the form of recordkeeping. This has been incorporated into the minor NSR permit.

Monitoring to determine compliance with the provisions of 40 CFR Part 63 Subpart N will be in the form of recordkeeping and testing. These conditions have been incorporated into the operating permit.

Visual emission monitoring limits the permittee to no visible emissions from any of the coating booths.

3. **Recordkeeping**

Throughputs of all coatings and solvents, powder coatings and thermal spray coatings are required. Records to show compliance with the MACTS – Subpart II and Subpart N, and MSDS sheets for all coatings are also required.

4. **Testing**

The permit does not require source tests. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

E. Liquid Handling Operations

1. **Limitations**

There are no federal regulations applicable to the Liquid Handling Operations at the shipyard:

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5 Chapter 40	Article 37: Emission Standards for Petroleum Liquid Storage and Transfer Operations
9 VAC 5 Chapter 50	New and Modified Stationary Sources
9 VAC 5 Chapter 50	Article 1: Visible Emissions and Fugitive Dust/Emissions

2. **Monitoring**

Monitoring to prove compliance with Article 37 of 9 VAC 5 Chapter 40 shall be done by recordkeeping and testing. These conditions have been incorporated into the operating permit.

No visual evaluations are specified for this part of the facility because VOC's from GSTA-001 and GSTA-005 are not visible emissions.

3. **Recordkeeping**

Records of observations for the Stage I connector system on the tank are required to prove that the connector is operating properly.

4. **Testing**

The permit does not require source tests. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

F. Facility Wide Conditions

There are no federal regulations applicable to the Facility Wide Conditions at the shipyard:

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5 Chapter 40	Article 39: Emission Standards for Asphalt Paving Operations
9 VAC 5 Chapter 50	New and Modified Stationary Sources
9 VAC 5 Chapter 50	Article 1: Visible Emissions and Fugitive Dust/Emissions

G. General Conditions

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

Comments on General Conditions

B. Permit Expiration

This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit applications has been delegated to the Regions as allowed by §2.1-20.01:2 and §10.1-1185 of the *Code of Virginia*, and the “Department of Environmental Quality Agency Policy Statement No. 2-2003”.

This general condition cites the Articles that follow:

Article 1 (9 VAC 5-80-50 et seq.), Part II of 9 VAC 5 Chapter 80. Federal Operating Permits for Stationary Sources

This general condition cites the sections that follow:

9 VAC 5-80-80. Application
9 VAC 5-80-140. Permit Shield
9 VAC 5-80-150. Action on Permit Applications

F. Failure/Malfunction Reporting

Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours of discovery of the malfunction.

J. Permit Modification

This general condition cites the sections that follow:

- 9 VAC 5-80-50. Applicability, Federal Operating Permit For Stationary Sources
- 9 VAC 5-80-190. Changes to Permits.
- 9 VAC 5-80-260. Enforcement.
- 9 VAC 5-80-1100. Applicability, Permits For New and Modified Stationary Sources
- 9 VAC 5-80-1790. Applicability, Permits For Major Stationary Sources and Modifications Located in Prevention of Significant Deterioration Areas
- 9 VAC 5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications Locating in Nonattainment Areas

Q. Inspection and Entry Requirements

In the minor NSR permit NNSY has added a condition that states the following which has been pulled into this condition of the Title V permit:

As a matter of national security, DEQ recognizes that there are established procedures that ALL personnel must follow to gain access to the NNSY facility. NNSY will take prompt and expedient actions necessary to allow DEQ access to facilitate inspections.

U. Malfunction as an Affirmative Defense

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Condition U and General Condition F. For further explanation see the comments on general condition F.

This general condition cites the sections that follow:

- 9 VAC 5-20-180. Facility and Control Equipment Maintenance or Malfunction
- 9 VAC 5-80-110. Permit Content

Y. Asbestos Requirements

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

This general condition contains a citation from the Code of Federal Regulations that follow:

- 40 CFR 61.145, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to demolition and renovation.
- 40 CFR 61.148, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to insulating materials.
- 40 CFR 61.150, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to waste disposal.

This general condition cites the regulatory sections that follow:

- 9 VAC 5-60-70. Designated Emissions Standards
- 9 VAC 5-80-110. Permit Content

H. STATE ONLY APPLICABLE REQUIREMENTS

The following Virginia Administrative Codes have specific requirements only enforceable by the State and have been identified as applicable by the applicant:

- 9 VAC 5, Chapter 40, Part II, Article 2: Emissions Standards for Odor
- 9 VAC 5, Chapter 50, Part II, Article 2: Standards of Performance for Odorous Emissions
- 9 VAC 5, Chapter 60, Part II, Article 4: Emission Standards for Toxic Pollutants from Existing Sources
- 9 VAC 5, Chapter 60, Part II, Article 5: Emission Standards for Toxic Pollutants from New and Modified Sources

I. INAPPLICABLE REQUIREMENTS

The permit includes an extensive table listing all the inapplicable requirements identified by this facility.

The startup, shut down, and malfunction opacity exclusion listed in 9 VAC 5-40-20 A 3 cannot be included in any Title V permit. This portion of the regulation is not part of the federally approved state implementation plan. The opacity standard applies to existing sources at all times including startup, shutdown, and malfunction. Opacity exceedances during malfunction can be affirmatively defended provided all requirements of the affirmative defense section of this permit are met. Opacity exceedances during startup and shut down will be reviewed with enforcement discretion using the requirements of 9 VAC 5-40-20 E, which state that "At all times, including periods of startup, shutdown, soot blowing and malfunction, owners shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with air pollution control practices for minimizing emissions."

J. INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

K. PUBLIC PARTICIPATION

The proposed permit will be placed on public notice in the *Virginian Pilot* from March 4, 2007 to April 3, 2007.